CHAPTER IV

CONCLUSION

During the course of this research, grafting of 4-methoxycinnamic acid on silicone were carried out with the aim to make lower skin-permeation sunscreen. Grafting of 4-methoxycinnamic acid on (6-7% aminopropylmethylsiloxane)-dimethylsiloxane copolymer (**AS**) successfully gave [3-(*p*-methoxycinnamido)propyl](methyl)-dimethylsiloxane copolymer (**G-AS**) (Figure. 4.1) was done by using 1-(3-dimethylaminopropyl)-3-ethylcarbodiimide hydrochloride (EDCI) coupling agent. Grafting of 10 mol% 2-propylene-4-methoxycinnamate on poly (methylhydrogensiloxane) (**MHS**) gave poly[(methyl)(octyl)(methyl)(propyl-4-methoxycinnamatesiloxane] (**G-MHS**) (Figure. 4.1). Both **G-AS** and **G-MHS** exhibit UVB absorption profile similar to octyl methoxycinnamate (OMC). Photostability test revealed that **G-AS** and **G-MHS** were more photostable than free OMC. Moreover, skin absorption tests of both products suggested that skin permeation of the chromophores grafting on silicone were much lower than that of free OMC.

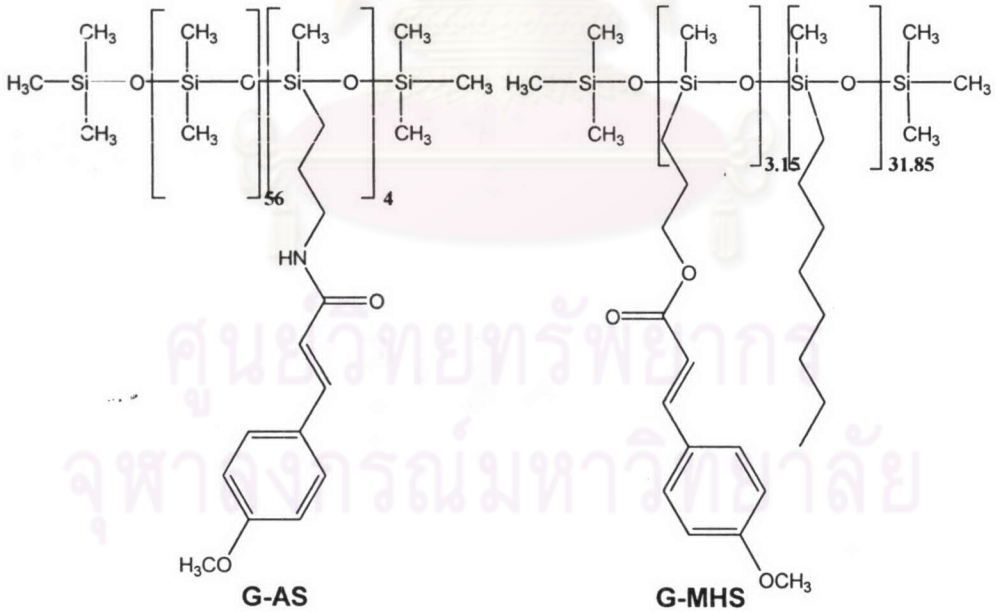

Figure 4.1 Structure of **G-AS** and **G-MHS**